

What is claimed is:

1. A guide actuator with high radial direction load capability at least comprising a guide structure, a table, and a actuating structure, wherein:
said guide structure is bar-like in appearance and U-shape in cross section, so
5 that to modify the moment of inertia of said guide structure, a first grooves respectively being set at a bottom inside of U-shape, a second grooves being set at an inner wall of each side of U-shape;
said actuator structure provides said table with power for moving;
said table is set between said inner wall of each side of said U-shape guide
10 structure and length of said table is shorter than that of said U-shape guide structure, two grooves being set corresponding to said first grooves at said bottom and said second grooves at said inner walls respectively, a plurality of rollers being set between said first, second grooves of said guide structure and said corresponding two grooves of said table, a mechanism for circulation of
15 rolling motion of said rollers being set at a front end and an rear end of said table to make said table enable to slide along said first and second grooves of said guide structure, wherein the angle formed between the direction of on exerted force onto the groove formed along the side wall of said U-shape guided structure and the direction of an exerted force onto the groove formed
20 along the inner bottom side at the middle part of said U-shape guide structure is $105^{\circ}\sim 155^{\circ}$.
2. A guide actuator with high radial direction load capability according to claim 1, wherein said actuating structure is a screw, a plurality of threads corresponding

to said screw being set on said table.

3. A guide actuator with high radial direction load capability according to claim 3,
wherein said screw is a ball screw.

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4. A guide actuator with high radial direction load capability according to claim 1,
wherein a plurality of setting holes are set at a bottom surface of said U-shape
guide structure so that said guide actuator with high radial direction load
capability could be locked to a mechanical base.

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5. A guide actuator with high radial direction load capability according to claim 1,
wherein said rollers include a plurality of balls and a plurality of columns.